

**Notice of Allowability**

Application No.

10/604,857

Examiner

Mary Wilczewski

Applicant(s)

LIU, YU-CHENG

Art Unit

2822

Hw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Response to Restriction Requirement filed 09 April 2004.
2. ☒ The allowed claim(s) is/are 1-4.
3. ☒ The drawings filed on 22 August 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

M. Wilczewski  
Primary Examiner  
Tech Center 2800

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

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The application has been amended as follows:

This application is in condition for allowance except for the presence of claims 5-15 drawn to an invention non-elected without traverse in the Response to Restriction Requirement filed on April 9, 2004. Accordingly, claims 5-15 have been cancelled.

### **Statement of Reasons for Allowance**

The following is an examiner's statement of reasons for allowance: The prior art is replete with sputtering apparatuses that have means for heating and/or cooling various parts of the apparatus, for example, the heating and/or cooling of substrate supports (see, for example, U.S. Patent 5,892,207 or U.S. Patent 5,478,609), the cooling of target supporting members (U.S. Patent 5,328,585), the temperature monitoring and heating of a processing chamber (U.S. Patent Publication US2001/0042594) and the cooling of a magnetron sputtering apparatus by flowing a coolant through a hollow drive shaft coupled to the magnetron (U.S. Patent 6,641,701). The prior art also discloses apparatuses

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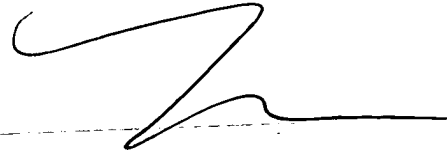
that include inner chambers within a larger outer chamber, these inner chambers having heating and/or cooling means (U.S. Patent 6,270,633 and U.S. Patent 6,015,594). In addition, U.S. Patent 4,339,326 discloses an apparatus that comprises a cooling pipe (21) provided on the outer wall of the processing chamber (5) in order to cool the chamber from the outside by running cooling water through the pipe. However, none of the prior art of record teaches or suggests a sputtering apparatus comprising a cathode on which a target is installed which has a temperature-controlling device comprising a temperature sensor installed on an inner sidewall of the chamber for measuring the temperature of the inner sidewall of the chamber and a temperature receiver connected to the temperature sensor, for receiving and storing temperature data measurements and a water-cooling system comprising cooling-water piping encircling sidewalls of the chamber wherein the flow rate of the cooling water is controlled based on temperature signals from the temperature receiver, thereby controlling the temperature of the inner sidewall.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication should be directed to M.

Wilczewski at telephone number (571) 272-1849.

A handwritten signature in black ink, consisting of a stylized 'M' followed by a horizontal line.

M. Wilczewski  
Primary Examiner  
Tech Center 2800